Medicare Participating Heart Bypass Center Demonstration:

Final Evaluation Report: Executive Summary to Volume II - Marketing Activities of Participating Hospitals

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December 1994

This project was funded under contract to Lewin-VHI under HCFA Contract No. 500-87-0029. The statements contained in this report are solely those of the authors and do not necessarily reflect the views or policies of HCFA. The contractor assumes responsibility for the accuracy and completeness of information contained in this report.

TABLE OF CONTENTS

I. INTRODUCTION 1
II. OVERVIEW OF HOSPITALS AND THEIR MARKETS 4
III. HOSPITAL MARKETING WITHIN THE CONTEXT OF THE DEMONSTRATION 12
A. BACKGROUND 12
B. THE GOVERNMENT'S OBJECTIVES 15
C. OVERVIEW OF THE HOSPITAL'S MARKETING PROGRAMS 16
1. Program Objectives *16*
2. Promotional Strategies *20*
3. Target Audience *21*
IV. PATIENT VOLUME AND PHYSICIAN REFERRAL PATTERNS 23
A. PATIENT VOLUME 23
B. PATIENT CHARACTERISTICS 31
V. PARTICIPANT SATISFACTION 34
A. HOSPITAL PATIENT SATISFACTION SURVEYS 34
B. HOSPITAL PHYSICIAN SATISFACTION SURVEYS 37
C. NATIONAL EVALUATION OF PARTICIPANT SATISFACTION 38
VI. CONCLUSION 42

I. INTRODUCTION

The Health Care Financing Administration (HCFA) is currently conducting a demonstration to test the feasibility and cost effectiveness of paying hospitals and doctors a single negotiated amount for all hospital and inpatient physician services associated with coronary artery bypass graft (CABG) surgery. HCFA selected seven hospitals to serve as demonstration sites based on the completeness of the package of services each was willing to provide Medicare beneficiaries under the demonstration, the quality of care provided by the hospital and its physicians, and the size of the discount the hospital and doctors were willing to accept for their services. Four sites joined the demonstration in May of 1991. These hospitals are:

- Saint Joseph Mercy Hospital (SJMH) in Ann Arbor, Michigan;
- Boston University Medical Center Hospital (BUMCH) in Boston, Massachusetts;
- Ohio State University Hospital (OSUH) in Columbus, Ohio; and
- Saint Joseph Hospital of Atlanta (SJHA) in Atlanta, Georgia.

HCFA expanded the demonstration in June 1993 to include three new sites. These hospitals are:

- St. Vincent Hospital and Medical Center (SVHMC)in Portland, Oregon;
- St. Luke's Episcopal Hospital (SLEH) in Houston, Texas; and
- Methodist Hospital (MHI) in Indianapolis, Indiana.

Under the terms of the demonstration, hospitals and physicians receive a global payment (Medicare Parts A and B) for all CABG surgeries performed on Medicare beneficiaries that fall within DRGs 106 and 107. HCFA negotiated the price it would pay for the package of hospital and physician services with each site prior to its joining the demonstration. The negotiated rate is different for each of the sites, but all are below the average rate the Medicare program is currently paying for CABG surgery (Parts A and B combined). Participating providers accept the negotiated rate as payment in full. The expectation is that cost efficiencies realized through improved coordination of services and increased volume will allow the sites to provide the needed services at (or below) the negotiated rate.

The marketing component of the Medicare Participating Heart Bypass Center demonstration evaluation is designed to provide HCFA with the information it needs to determine

the success of the participating hospitals in promoting the demonstration and increasing the number of CABG surgeries performed each year at their institutions. All hospitals considered for inclusion in the demonstration were required to provide HCFA with a written statement describing what they planned to do to increase CABG volume if selected. Site selection did not hinge on this part of the application, but the feasibility of the action plan set out in these statements was one of the elements considered. Following their selection, HCFA asked the seven participating hospitals to develop detailed marketing plans, describing the actions in which they planned to engage as a way to build public awareness of their designation as a Medicare Heart Bypass Center and alter existing physician referral patterns.

The marketing evaluation has in two distinct phases. The first phase of the marketing evaluation had five main elements:

- A review of the marketing objectives and promotional activities of the participating hospitals;
- A review of the services the participating hospitals are providing to Medicare beneficiaries, their families, and their referring physicians under the demonstration;
- An examination of changes in CABG surgery volumes within each of the demonstration markets and at each of the demonstration sites during the demonstration period;
- An examination of factors that may have produced observed changes in CABG volume, such as changes in physician referral patterns, market size, or the characteristics of persons seeking care at the demonstration sites; and
- An examination of patient response to the demonstration.

Some aspects of phase one will continue in the second, some will be dropped, and others will be added. The results of both phases, when taken together, will help HCFA determine the extent to which the participating hospitals are able to increase volume while reducing costs. The ability of the hospitals and physicians to modify their product (i.e., the nature and duration of services provided in conjunction with DRGs 106 and 107) without compromising quality or adversely affecting beneficiary satisfaction and promote public awareness of their designation are key determinants of how successful the hospitals are likely to be in this regard.

This report presents a brief overview of the final report for the first phase of the marketing evaluation.[1] The report begins with a description of the hospitals participating in the Heart Bypass Center Demonstration and the markets in which they are located (Section II). The focus, structure, and content of the hospitals' marketing programs are reviewed next (Section III). The remaining sections examine patient volume and physician referral patterns (Section IV) and consumer satisfaction (Section V). The report concludes with a summary of key findings from the first phase of the marketing evaluation (Section VI).

[1] Lewin-VHI, *Marketing Activities of the Medicare Participating Heart Bypass Center Demonstration Hospitals*. December 30, 1994.

II. OVERVIEW OF HOSPITALS AND THEIR MARKETS

The marketing programs of the Medicare Participating Heart Bypass Centers are tailored to key characteristics of the institutions and their individual markets. Both factors vary significantly across the sites. As seen in Exhibit II-1, the Medicare Participating Bypass Centers vary in terms of capacity, location, and range of key services. The staff size, composition, and configuration of the participating hospitals also differ. The size of the Medicare bypass programs, in terms of volume of surgeries performed at each hospital, ranged from 149 to 761 in calendar year 1993.[2]

The population demographics and managed care environment vary across the seven demonstration sites as well. As seen in Exhibit II-2, the number of residents living in each hospital market, their gender distribution, and their rate of ischemic heart disease varies widely across each area. All of the hospital markets have a higher proportion of elderly female than elderly male residents. Ann Arbor has the smallest total population, with 490 thousand residents, while Boston has the largest, with approximately 6 million residents. Similarly, Boston has the highest proportion of residents over the age of 65 (12.7 percent), with Portland following closely (12 percent). With the exception of Houston, market area trends for heart disease reflect the age of area residents.

The composition of each hospital market has changed little since the beginning of the demonstration, although the number of competing hospitals within each market varies widely. Trends in the demand for Medicare bypass surgery vary across the markets, as seen in Exhibit II-3. The market position of the hospitals also differs. Some hospitals are market leaders, while others command a relatively small share of the Medicare bypass market.

Where available, payer mix data for all hospital services shows a growth in managed care and Medicare. Available payer data for cardiovascular services reveals reductions in the proportion of services paid by Medicare complemented by growth in the proportion of other managed care payment.

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[2] Based on Medicare bypass surgeries performed that fall within DRG 106, DRG 107, and DRG 108 (with a procedure code of 36.10-36.15 or 36.19).

Exhibit II-1

Characteristics of the Medicare Heart Bypass Center Hospitals

Characteristic	SJMH	OSUH	BUMCH	SJHA	SVMCH	SLEH	MHI
Total # Licensed Beds	671	963	311	346	451	949	1,120
Total # Open Beds	671	699	N/A	346	451	642	980
Total # Open Cardio-Thoracic Beds	N/A	104	N/A	N/A	18	230	43
Location (i.e. urban, suburban, central city)	Metropolitan Fringe	Urban	Central City	Metropolitan Fringe	Suburban	Urban	Urban
Key Service Lines	•Cardiology •Cardiac Surgery •Obstetrics •Neurosciences	•Cardiovascular •Women's Health •Transplant •Neurosciences •Rehabilitation	•Heart Care •Neurosciences •Emergency Medicine and Critical Care •Elderly Care •Cancer Care •Women's Health	•Cardiology •CV Surgery •Vascular surgery •Gastroenterology •Oncology •Orthopedics	•Heart, Cancer •Women/Children •Neuro-musculoskeletal •Medicine/ Prevention/ Primary Care •Chronic Care •Occupational Health	•Cardiovascular •Orthopedics •Women's Health •Digestive •Oncology •Urology •Neurology	•Cardiovascular •Orthopedics •Neurologic System •Gastroenterology
Academic Affiliation	No	Yes	Yes	No	Yes	Yes	Yes

Exhibit II-1 (continued)

Characteristics of the Medicare Heart Bypass Center Hospitals

Characteristic	SJMH	OSUH	BUMCH	SJHA	SVMCH	SLEH	MHI
Medical Staff Configuration (open/closed)	Open	Closed	Closed	Open	Open	CV Surgery Closed Cardiology Open	Open
Total # Physicians Affiliated w/ Hospital	500	477	N/A	Over 700	1,100	1,500	1,156
Total # Cardiologists	28[a]	29	32[b]	81	41 (on staff) 17 (Use St. Vincent as primary hospital)	72	62
Total # CV Surgeons	5	7	4	19	11	8	8

[a] Seven of these physicians primarily practice at satellite sites.
[b] Five of these physicians are at Boston City Hospital. Another five physicians are in private practices with admitting privileges at BUMCH.

Exhibit II-2

Demonstration Market Demographics

	Ann Arbor, MI	Columbus, OH	Boston, MA	Atlanta, GA	Portland, OR	Houston, TX	Indianapolis, IN
Total Population[a]	490,000	1,345,500	5,970,600	2,959,900	1,515,700	3,322,000	1,380,400
Percent/No. > 65	8.5% (41,759)	10.0% (134,151)	12.7% (760,854)	8.0% (237,581)	12.0% (181,683)	7.1% (235,697)	11.4% (157,200)
Percent/No. Females > 65	5.1% (25,053)	6.1% (82,604)	7.9% (471,508)	5.0% (147,334)	7.2% (108,731)	4.2% (140,961)	7.0% (96,660)
Percent/No. Males > 65	3.4% (16,706)	3.8% (51,547)	4.9% (289,346)	3.1% (90,247)	4.8% (72,952)	2.9% (94,736)	4.4% (60,540)
Rate of Ischemic Heart Disease Per 100,000[b]	75.7 (Ann Arbor) 212.8 (MI)	135.0 (Columbus) 230.4 (OH)	181.1 (Boston) 205.9 (MA)	95.3 (Atlanta) 154.7 (GA)	161.2 (Portland) 194.8 (OR)	110.9 (Houston) 145.4 (TX)	165.4 (Indianapolis) 222.6 (IN)

[a] Total population figures and age/gender distributions calculated from Area Resource File and reflect the 1990 population.
[b] Rates calculated based on April 1990 Census Population estimates and 1989 Vital and Health Statistics ischemic heart disease deaths estimates.

Exhibit II-3
Total Medicare Bypass Volume and Market Share Ranking 1990-1993[a]

Hospital	1990[b]			1993[b]			Hospital Volume Change	Market Volume Change
	Volume	Share	Rank	Volume	Share	Rank	1990-1993	1990-1993
SJHA	604	37.6%	1	761	42.1%	1	26.0%	12.6%
BUMCH[c]	249	9.8%	7	223	7.9%	7	(10.0%)	11.4%
OSUH[d]	131	5.1%	7	149	5.4%	6	14.0%	7.6%
SJMH[e]	284	10.2%	3	443	15.1%	2	56.0%	5.7%
SVMCH	393	43.6%	1	491	50.8%	1	25.0%	7.1%
MHI[f]	352	28.4%	2	339	23.9%	2	(4.0%)	14.7%
SLEH	686	33.5%	1	674	31.9%	1	(2.0%)	3.3%

a Based on all Medicare heart bypass operations performed in the market that fall within DRG 106 or DRG 107 and cases that fall within DRG 108 with a procedure code of 36.10-36.15 or 36.19.
b Calendar year data, based on MedPAR files for 1990 and 1993. 1993 values are estimates based on discharges through September 30th.
c BUMCH is in a competitive market; no one hospital has over 16 percent of the market.
d OSUH is located in a market that is dominated by two hospitals, one of which typically captures roughly a third of the market.
e SJMH is in a competitive market; the market leader typically captures 17 percent of the market.
f MHI's market is dominated by one hospital that captures nearly half of the total market.

Available hospital market data reflects the growing presence of managed care in today's health care market place. As seen in Exhibit II-4, managed care penetration has increased over time in each of the demonstration markets. For the hospitals with available data, shares of the managed care market for inpatient and cardiovascular services increased or remained stable.

Some of the demonstration sites have been more successful than others in attracting managed care contracts. Two hospitals have added at least eight managed care contracts since the beginning of the demonstration. In most hospitals, the number of managed care contracts for cardiac surgery, package price contracts, and package price contracts for cardiac surgery remained relatively constant.

Exhibit II-4

Hospital Market Characteristics at the beginning of the Demonstration and at the End of the Most Recent Demonstration Year[a]

Payer Mix- All hospital services[b]

	Original Sites								Expansion Sites					
	SJMH		OSUH		BUMCH		SJHA		SVMCH		SLEH		MHI	
	Demo Start	End Demo Year 3	Demo Start	End Demo Year 3	Demo Start	End Demo Year 3	Demo Start	End Demo Year 3	Demo Start	End Demo Year 1	Demo Start	End Demo Year 1	Demo Start	End Demo Year 1
Medicare	25%	36.7%	23%	25%	N/A	N/A	N/A	49%	31%	32%	29.1%	29.2%	37%	37%
Medicaid	7.6%	7.4%	18%	29%	N/A	N/A	N/A	2%	2%	2%	10.6%	9.4%	11%	13%
Managed Care	14.9%	15.7%	40%[c]	36%	N/A	N/A	N/A	15%	31%	40%	32.8%	38.4%	13%	17%
Non-Managed Care	40.4%	38.1%	N/A	N/A	N/A	N/A	N/A	34%	36%	27%	18%	16.1%	30%	26%
Other	1.5%	2.2%	19%	10%	N/A	N/A	N/A	(incl. in non-managed care)	N/A	N/A	9.5%	6.9%	9%	7%

[a] For the original sites (Boston, Ann Arbor, Atlanta, Ohio) the demonstration began in June 1991. For the expansion sites, the demonstration began in June 1993. For all sites, the most recent year data are for 1993.

[b] The information presented in this exhibit was supplied by the participating hospitals.

[c] For both time periods, category includes all private insurance, including non-managed care.

Exhibit II-4 (continued)

Hospital Market Characteristics at the beginning of the Demonstration and at the End of the Most Recent Demonstration Year

Payer Mix- Cardiovascular services (All)[d]

	Original Sites								Expansion Sites					
	SJMH		OSUH		BUMCH		SJHA		SVMCH		SLEH		MHI	
	Demo Start	End Demo Year 3	Demo Start	End Demo Year 3	Demo Start	End Demo Year 3	Demo Start	End Demo Year 3	Demo Start	End Demo Year 1	Demo Start	End Demo Year 1	Demo Start	End Demo Year 1
Medicare	49.6%	50.2%	46%	25%	N/A	N/A	N/A	44%	34%[e]	30%	48.7%	50.4%	59%	47%
Medicaid	3.7%	3.3%	7%	13%	N/A	N/A	N/A	2%	1%	1%	2.6%	2.0%	3%	4%
Other Managed Care	6.3%	6.4%	34%[f]	29%	N/A	N/A	N/A	16%	50%	55%	16.7%	22.9%	8%	10%
Non-Managed Care	39.0%	38.2%	N/A	23%	N/A	N/A	N/A	38%	15%	14%	23.3%	16.6%	23%	36%
Other	1.3%	1.9%	13%	10%	N/A	N/A	N/A	(incl. in non-managed care)	N/A	N/A	8.7%	8.0%	7%	3%

[d] The information presented in this exhibit was supplied by the participating hospitals.
[e] Payer mix data are for open heart surgery only.
[f] For both time periods, category includes all private insurance, including non-managed care.

Exhibit II-4 (continued)

Hospital Market Characteristics at the beginning of the Demonstration and at the End of the Most Recent Demonstration Year

Managed Care[g]

	Original Sites								Expansion Sites					
	SJMH		OSUH		BUMCH		SJHA		SVMCH		SLEH		MHI	
	Demo Start	End Demo Year 3	Demo Start	End Demo Year 3	Demo Start	End Demo Year 3	Demo Start	End Demo Year 3	Demo Start	End Demo Year 1	Demo Start	End Demo Year 1	Demo Start	End Demo Year 1
Managed care penetration in market	30%	50%	N/A	40%	N/A	N/A	60-70% PPO 10% HMO	40-50% PPO 20% HMO	65%	79%	60%	65%	15%	18%
Hospital's percent of managed care market-all services	14.9%	15.7%	N/A	36%	N/A	N/A	N/A	N/A	N/A	N/A	74%	77.8%	40%	40%
Hospital's percent of managed care market - CV services	6.3%	6.4%	N/A	36%	N/A	N/A	N/A	N/A	N/A	N/A	74%	77.8%	40%	40%
Hospital's total # managed care contracts	1	2	N/A	N/A	N/A	N/A	N/A	55	20	21	53	65	30	38
Hospital's total # managed care contracts - cardiac surgery	1	2	N/A	N/A	N/A	N/A	N/A	2	17	18	7	7	26	33
Total # package price contracts (including cardiac)	0	1	N/A	N/A	N/A	N/A	N/A	1	5	6	21	21	2	2
Total # package price contracts for cardiac surgery	0	2	N/A	N/A	N/A	N/A	N/A	3[h]	5	6	17	17	2	2

[g] The information presented in this exhibit was supplied by the participating hospitals.
[h] Includes pending contracts for global package price cardiology and cardiovascular surgery services.

III. HOSPITAL MARKETING WITHIN THE CONTEXT OF THE DEMONSTRATION

A. Background

To be successful in today's marketplace, hospitals must have a detailed knowledge of the needs and wants of their current and future customers. They must also have sufficient resources at their disposal to produce the products and services demanded by those customers. In addition, hospitals must design and implement effective communication programs, as well as develop and maintain networks that will channel a sufficient volume of customers to their doors each year. Central to this effort is the need for hospitals to create a differential advantage over their competitors.

Most of the strategies hospitals can use to distinguish their products from those of their competitors fall within the four "P's" of marketing: Product, Price, Place, and Promotion. A successful marketing effort is based on a carefully planned strategy that addresses each of these elements. The demonstration hospitals marketing programs address aspects of these elements, so it is important to understand what each embodies and the contribution each makes to the whole.

Product. A hospital's *products* are the services that it develops to satisfy a consumer need. The demonstration focuses on two products: coronary artery bypass graft surgery with a cardiac catheterization and coronary artery bypass graft surgery without cardiac catheterization. Under the demonstration, the product is sold as a package that includes both hospital and physician services. These products are part of a line of products that each of the hospitals offers to consumers who suffer from coronary artery disease. Other products within this line use less invasive procedures (such as PTCA, medical management, and lifestyle changes) to alleviate symptoms and reduce the threat of death and disability.

While the demonstration is built around the same two products, each of the hospitals participating in the demonstration is offering substantially different products to consumers within their respective markets. These differences involve the manner in which the hospital produces the demonstration products (such as the qualifications, number, and

types of medical personnel involved in delivering a unit of service or the equipment used), variations in the number and attributes of the goods and services the hospital provides patients admitted for care (such as free TV, daily newspapers, or valet parking) and their referring physicians, as well as any special services the hospital may have decided to offer patients under the demonstration (such as nutrition counseling or cardiac rehabilitation). Information would be needed on all CABG products being offered within the demonstration markets (i.e., the attributes of all DRG 106 and 107 CABG services available in the seven demonstration markets) in order to determine the extent to which product features influence the ability of the participating hospitals to increase CABG volume under the demonstration.

Price. From the consumer's perspective, *price* includes both the actual dollar value of any payments that he or she may be required to make in conjunction with the purchase or use of a product (such as out of pocket charges associated with a hospital episode of illness, transportation costs, parking fees, charges for lodgings, etc.) as well as non-monetary costs associated with that transaction (such as expenditures of time and energy, anxiety, and hassle factors, such as dealing with multiple bills from hospitals and doctors following an episode of illness).[4] The discounted package price negotiated between HCFA and the hospitals is not likely to serve as a strong inducement to Medicare beneficiaries, especially if they have supplemental insurance. Each faces the same out-of-pocket expenses for the base product no matter where he or she goes for care. Beneficiaries are much more likely to focus on "fringe" costs, such as the cost of transportation to and from the hospital and doctors offices, hotel accommodations for family members, and parking, as well as any non-monetary costs they may perceive to be associated with use of a particular provider.

Place. In the world of hospital marketing, *place* refers to the attributes of the facility or facilities where products and services are provided. Thus, place refers to factors that determine the accessibility of services, such as the hours of operation for demonstration

[4] Kotler, Philip and Andreasen, Alan. *Strategic Marketing for Nonprofit Organizations.* (3rd ed.) Englewood Cliffs, NJ: Prentice-Hall Inc., 1987 and Ireland, Richard, "Marketing: A New Opportunity for Hospital Management." *Health Care Marketing: Issues and Trends*, ed. Phillip D. Cooper. Rockville, MD: Aspen Systems Corporation, 1985.

hospital admitting offices, the length of the waiting list for surgery, or the proximity of hospital departments one to another when visits to multiple doctors or to multiple diagnostic testing facilities are required as part of the diagnostic work-up or follow-up care. Place also refers to the actual location of the hospital (e.g., central city, urban, suburban) and factors that influence the ability of consumers to gain access to the hospital by using various forms of transportation. In addition, place refers to the attributes of the hospitals physical plant (e.g., age, condition) and how readily patients and their families are able to make their way to desired destinations. How consumers view the place in which they will receive CABG surgery under the demonstration is an important determinant of the ability of the participating hospitals to increase the number of bypass surgeries they perform each year.

Promotion. Hospitals use *promotion* to make consumers aware of the hospital and its products. As an element of the marketing mix, promotion has four objectives:

- To inform and educate consumers of the availability of the service;
- To remind present and former consumers of the continued existence of the service and why they should use them should the need arise;
- To persuade potential consumers that the service is worth buying; and
- To inform the consumer of where and how to obtain the service.[5]

Hospitals have a variety of tools at their disposal to get their messages before their target audiences. Most fall within the following categories: advertising, publicity, events, and personal marketing.

The marketing programs of the demonstration hospitals began with the market research and analysis each conducted to develop its application for participation in the demonstration. The application described the range of services the hospital would include under the demonstration, the price it would charge HCFA and any concessions it was willing to offer beneficiaries to reduce their out-of-pocket expenses, the place where these services would be provided, and the activities

[5] Jon G. Keith, "Marketing Health Care: What the Recent Literature is Telling Us," Health Care Marketing: Issues and Trends, ed. Philip D. Cooper (Rockville, MD: Aspen Systems Corporation, 1985).

in which the hospital planned to engage to inform consumers about the demonstration. Each of these elements has evolved over the course of the demonstration in response to changes in the health care market place, clinical practice, extant technology, or the hospital's infrastructure. For example, additional services may have been included in the package price, certain hospital services may have been made more accessible, and original promotional strategies may have been adapted.

B. The Government's Objectives

HCFA undertook this study to learn more about the extent to which hospitals participating in a narrowly defined demonstration could develop a market strategy (e.g., product, price, place) that is attractive to Medicare beneficiaries and their referring physicians and use this strategy to aggressively promote the demonstration with consumers and thereby increase the number of CABG surgeries performed each year. Information gathered as part of the evaluation will help HCFA monitor what the participating hospitals are doing to achieve their marketing objectives and identify what strategies are most effective. Data collected through the marketing component of the demonstration evaluation will also help HCFA shape future demonstrations.

When the demonstration began, HCFA expected the hospitals would engage in a series of discrete marketing efforts over the life of the demonstration that would serve to increase patient volume at the sites. Since the success of the demonstration was expected to rely on positive public response, the needs of the public would determine hospital marketing efforts. Marketing strategies would differ greatly across the demonstration sites, depending upon the competition within the community, hospital occupancy rates, medical staff competition, hospital marketing budgets, as well as the staffing and experience of the marketing department.

Physicians and patients were viewed as key target audiences for these efforts. Promotional activities targeted at physicians within and beyond traditional service areas were expected to increase physician referrals by informing physicians about the HCFA demonstration, the advantages it would offer to patients, and the high quality of services offered at each demonstration site. Activities geared toward increasing public awareness were considered important because HCFA believed that many potential patients (both Medicare and non-Medicare) and other payers might request referrals to the demonstration sites after they learned

about the key attributes of the two products participating sites were offering under the demonstration.

At the outset, the marketing plans of the original four demonstrations were very similar, although each site had developed marketing strategies specific to its individual market. The intended nature of the promotional activities and level of effort varied considerably across sites. Sites intended to target physician audiences via direct mail campaigns, advertisements in local, state, and regional medical journals, and physician exhibits, meetings, conferences, and symposia. Potential patients were expected to be reached through the general media, as well as through senior-directed and health-related publications, direct mail campaigns to certain patient and interest groups, lectures, and slide shows. Brochures targeting physicians and patients would be developed and disseminated widely.

C. Overview of the Hospital's Marketing Programs

Although the marketing programs of the participating hospitals are tailored to the strategic objectives of each institution and the characteristics of the markets in which each is located, they share similar objectives, are based on similar strategies, and the market communications and promotional activities are targeted to similar audiences.[6] The information that follows highlights one aspect of these efforts: the market communications and promotion programs undertaken by the demonstration sites. Exhibit III-1 provides a brief overview of the similarities and differences among these various efforts. Exhibit III-2 depicts the relative emphasis each site is placing on the various components of a fully developed communication campaign.

1. Program Objectives

The primary marketing objective of the demonstration projects has changed from the one each identified in its original application to be a Medicare Heart Bypass Center. The hospitals no

[6] This material is based on qualitative information supplied by each of the demonstration sites since the start of the demonstration. The information relates to various aspects of their programs, such as updated marketing plans and budgets, promotional materials, and newspaper articles. Lewin-VHI also conducted interviews on-site and by telephone with representatives of the seven sites to elicit information about the status of their programs and factors that have served to facilitate or hamper their efforts.

Exhibit III-1

Overview of the Marketing Communications Programs of the CABG Demonstration Hospitals

Marketing Program Characteristic	Demonstration Hospitals						
	SJMH	OSUH	BUMCH	SJHA	SVMCH	SLEH	MHI
Primary Objective	Increase Awareness of Heart Institute at SJMH	Increase Awareness of OSUH Hospital	Increase Awareness of BUMCH Increase Awareness of CABG Demo	Increase Awareness of SJ Hospital and its Heart Institute	Increase total enrollment in Providence Health System Increase awareness of CABG demo	Increase Awareness of St. Luke's and the CABG demo	Increase Awareness of Methodist Hospital
Message Themes	Cost conscious Quality care	Cost conscious State-of-the-art services Quality care	Quality care State-of-the-art services Comprehensive heart care Cost conscious	Cost conscious Quality care	Comprehensive Services Quality care	Quality care State-of-the-art services Cost conscious	Quality care Cost conscious Provider of choice
Communication Channels	Personal Communication Special Media (brochures) Public Relations Mass Media (paid print ads)	Special Media (brochure, direct mail) Mass Media (paid print ads, news mentions) Public Relations/ Community Outreach Personal Sales- (liaison program)	Special Media (brochures) Personal Communication Public Relations Mass Media (paid print ads) Promotion/ Incentives (24-hour cardiac consult line)	Personal Communication Public Relations Special Media (brochures, direct mail) Mass Media (news mentions human interest stories)	Public Relations (press releases, coverage) Personal Communication Special Media Mass Media (paid TV, print, billboard ads for Health System)	Special Media (brochures, articles) Personal Communication Public Relations/ Community Outreach	Public Relations Mass Media (paid radio, TV, print ads) Special Media (brochures, videos) Personal Communication

Exhibit III-1 (continued)

Marketing Program Characteristic	Demonstration Hospitals						
	SJMH	OSUH	BUMCH	SJHA	SVMCH	SLEH	MHI
Target Audiences	Physicians in region Third party payers/ self insured businesses Health care Institutions General Public	Physicians in region General public Patients Hospital Staff	General Public Physicians (with emphasis on Southeastern Massachusetts) Third party payers/ self insured businesses	Third party payers/self insured businesses Other health care institutions & physician groups Physicians in Southeastern U.S. Hospital's staff, patients General public	Hospital staff/ physicians Referring Physicians/ Hospitals General Public Medicare Beneficiaries	Referring Physicians Third party payers (managed care providers) Patients/Families General Public Hospital Staff	General Public Physicians Third party payers/ Self-insured businesses
Desired Response	Increase Name Recognition -- Hospital Increase public image (high quality, low cost provider) Increase number of fixed price, bundled payment contracts (all services) Increase referrals across all services	Increase Name Recognition -- Hospital Increase Public Image (hospital working for citizens -- to decrease cost while continuing to provide state of art care) Increase volume of CABG surgery	Increase Public/ Physician recognition and knowledge of BUMCH, its heart program, and CABG demo Increase Name Recognition Hospital (new name) Increase number of fixed price, bundles payment contracts (all services) Increase volume CABG surgeries	Increase number of managed care, bundled payment contracts (all services) Increase Name Recognition -- Hospital Increase credibility in community (Market leader low cost, high quality care) Increase volume of CABG surgery	Increase public image (Health System, Heart Institute, Hospital) Increase name recognition (Health System, Heart Institute, Hospital)	Increase public image Increase number of managed care contracts	Increase Name Recognition -- Hospital Increase patient volume Increase referrals

Note: Items are listed in order of emphasis

Exhibit III-2

Composition and Focus of Promotional Programs Mounted by the Demonstration Hospitals

Demonstration Site	Personal Communications	Mass Media	Special Media	Public Relations/ Community Outreach	Groups Seeking to Influence			
					Public	Patients	Physicians	Payers
Saint Joseph's Mercy Hospital	✔✔	✔	✔✔	✔✔	✔	✔	✔✔	✔✔
Ohio State University Hospital	✔	✔✔	✔✔	✔	✔✔	✔	✔✔	✔
Boston University Medical Center Hospital	✔	✔✔	✔✔	✔	✔✔	✔	✔✔	✔✔
Saint Joseph's Hospital of Atlanta	✔✔	✔	✔✔	✔✔	✔	✔	✔✔	✔✔
St. Vincent Hospital and Medical Center	✔✔	✔	✔✔	✔	✔✔	✔	✔✔	✔
St. Luke's/ Texas Heart	✔✔	✔	✔✔	✔✔	✔	✔	✔✔	✔✔
Methodist Hospital of Indiana	✔	✔✔	✔✔	✔✔	✔✔	✔	✔✔	✔

Note: ✔ indicates some activity, but not a major focus
✔✔ indicates an area of emphasis.
✔✔✔ indicates an area of major emphasis

longer cite increased Medicare CABG volume as the primary objective of their effort. As a result, the hospitals are placing much less emphasis on strategies designed to increase the number of Medicare beneficiaries coming to them for CABG surgery each year. Instead, the hospitals are expending their resources on efforts aimed at enhancing the general public's awareness and impression of them as an institution, as well as the services they provide. This strategy is in keeping with what is now their primary objective -- establishing themselves as centers of excellence in the minds of third party payers, the medical community, and the general public.

The participating hospitals have also tried to achieve a related objective over the course of the demonstration, placing the demonstration in the forefront of national discussions of health care reform. During the first and second years of the demonstration, the hospitals joined together and retained a public relations firm in an effort to achieve this objective. As a result, the efforts of the hospitals to educate and inform hospital staff, referring physicians, and the patients who use their services about the project were broadened to include audiences on a regional and national level.

2. Promotional Strategies

The strategies used by the demonstration sites to achieve the objectives outlined above are quite similar. The hospitals promote the demonstration within the context of broader efforts to market the hospital or their heart programs through paid advertising, media relations, patient and physician communications, and presentations. But, the emphasis on and use of these strategies varies across hospitals.

With the assistance of The Wussow Consulting Group, all of the hospitals collectively participated in the development of a national media strategy and used a national press conference to release interim data and preliminary conclusions on the demonstration. The hospitals also seek local and regional media coverage at regular intervals, or whenever they encounter a situation in which the press is likely to be interested.

Five of the hospitals have used paid advertising to promote their services. However, reference to the demonstration in such efforts has been limited. Ohio State University Methodist Hospital and Boston University Medical Center Hospital used paid advertising most aggressively.

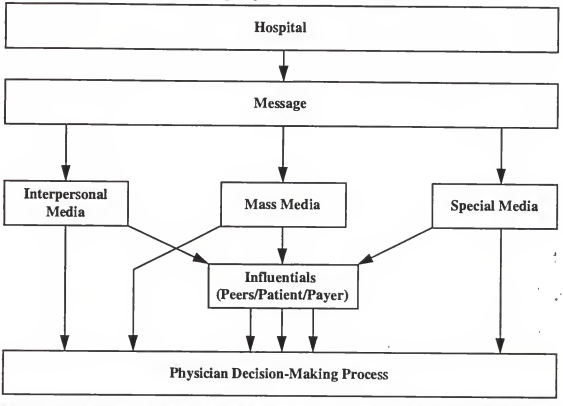
In addition, all of the institutions distributed materials about the demonstration to physicians and patients as part of their marketing strategy. Some hospitals distributed information on the demonstration to physicians and their patients using direct mail, while others distributed similar materials via referring physicians, hospital staff or during the admission process.

Finally, all of the demonstration projects used presentations to market the demonstration. In fact, the marketing strategy of Saint Joseph's of Atlanta and Saint Joseph's Mercy Hospital was heavily focused on conducting presentations about the demonstration to a variety of audiences on a local, regional, and national level.

3. Target Audience

The hospitals view patients, physicians, and the general public as their primary target audiences, the same core groups as identified in their marketing plans. The physicians targeted included those affiliated with the hospital, those who have referred patients to the hospital in the past, and those who are not currently part of the hospital's established referral network. Most of the hospitals broadened their target audience over the course of the demonstration to include self-insured businesses, payers, and other provider institutions in addition to the audience outlined in the first year report. The ultimate objective of the hospitals' activities is to influence the primary care physician's choice of hospital when they encounter a patient whose condition may require hospital-based diagnostic services, in-patient care, or surgery, particularly CABG. The relationship between the participating hospitals, the messages and communication channels they employ, and their target audiences is presented in Exhibits III-3 and III-4.

Exhibit III-3
Influencing Physician Referral Behavior



Based on: Kotler, Philip and Adreasen, Alan, "Strategic Marketing For Nonprofit Organizations," 3rd ed., Prentice-Hall, 1987, and Journal of Healthcare Marketing, Vol. 10, No. 4 (December 1990), p.57.

Exhibit III-4
Physician Information Sources

Interpersonal Media: Met physician at CME, national symposiums, social event or medical society meetings; talked to physician by phone.

Mass Media: TV, radio, newspaper, magazine

Special Media: Brochure, direct mail, medical journals, books, newsletters

Peer: Physician's peers including partners in practice, physician friends, physician's medical director

Patient: The person requiring the physician's care or the members of that person's immediate family.

Payer: Employer, insurance carrier, HMO/PPO

Based on: Kotler, Philip and Adreasen, Alan, "Strategic Marketing For Nonprofit Organizations," 3rd ed., Prentice-Hall, 1987, and Journal of Healthcare Marketing, Vol. 10, No. 4 (December 1990), p.57.

IV. PATIENT VOLUME AND PHYSICIAN REFERRAL PATTERNS

The amount of impact participation in the Medicare Heart Bypass Center demonstration has on a hospital depends on four factors:

- The size of the discount negotiated between HCFA and the hospital for the package of services included under the demonstration;
- The cost savings the hospital is able to realize by improving the efficiency and effectiveness with which CABG surgeries are performed;
- The extent to which any price adjustments the hospital negotiates with HCFA during the course of the demonstration covers any increases in input costs (i.e., labor, materials, etc.) the hospital may experience; and
- The number of CABG procedures perform at the hospital each year.

This section focuses on the extent to which CABG surgery volumes have increased at the participating hospitals since the start of the demonstration. As described in the preceding section, each of the hospitals participating in the demonstration is working to increase community awareness of their institution and its designation as a Medicare Heart Bypass Center. The hospitals are also endeavoring to strengthen their ties to primary care physicians in their immediate and extended market areas and to increase the number of managed care contracts they hold. These actions are intended to increase the number of CABG surgeries the hospitals perform each year, both within and outside the demonstration.[7]

A. Patient Volume

The demonstration sites provided the information on which this analysis is based. The database contains one year of baseline[8] and two and one-half years of data (for both

[7] This analysis is based on **all** CABG surgeries performed at the demonstration sites during the baseline and demonstration periods. This includes CABG surgeries that fall within DRG 104, DRG 105, DRG 106, DRG 107, and DRG 108, or other DRGs with a CABG procedure code (i.e., 36.10-36.15 and 36.19). Many of the CABG surgeries performed at the participating hospitals on individuals 65 years of age and older that fall outside the demonstration fall within the DRGs not included in the demonstration. This expanded database was used for this analysis to provide the broadest possible view of changes in CABG surgery volumes at the participating hospitals during the demonstration period.

[8] The baseline period covers the 12 months prior to the point at which the demonstration was fully operational at all four original participating hospitals: July 1, 1990 through June 30,1991.

demonstration and non-demonstration CABG recipients) for the original four hospitals[9] and one year of baseline[10] and nine months of demonstration[11] data for the three expansion hospitals.

The information presented in this section concerning CABG volume within and across the four demonstration sites is sensitive to the decision rules used to aggregate the data and structure the analysis. Lewin-VHI established the rules to address the large, but normal, fluctuations in CABG volumes observed at each of the sites within narrow bands of time (i.e., one month or less) and differences in the official start date for the demonstration at each of the sites. Using the decision rules, project staff:

- Grouped the data into quarters. The aggregated data smooth out some of the week-to-week, month-to-month variation in CABG volume that occurs within sites but still provides units of analysis that can be used to determine whether CABG volumes at the sites are changing over time.
- Used data from three baseline quarters, one "transition" quarter, and up to 10 demonstration quarters to conduct the analysis.[12,13] The transition quarter contains both baseline and demonstration data, since each participating hospital initiated the demonstration at a different point in time during this period. By the first demonstration quarter (July 1991 for the original four hospitals; July 1993 for the expansion hospitals) each hospital had established the systems required to identify patients that would be included in the demonstration, capture all hospital and physician charges associated with their care, and submit a single bill to HCFA for payment (at the amount agreed upon for the bundled services).
- Based monthly CABG volumes on the date of surgery, rather than admission or discharge date.

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9 This is the period for which full volume data are available from each of the participating hospitals. The data are arranged by quarter, starting with the third quarter of 1991 (i.e., July, August, September) and ending with the fourth quarter of 1993 (i.e., October, November, December).

10 The baseline period covers the 12 months prior to the point at which the demonstration was fully operational at the three expansion hospitals: July 1, 1992 through June 30,1993.

11 This is the period for which full volume data are available from each of the participating hospitals. The data are arranged by quarter, starting with the third quarter of 1993 (i.e., July, August, September) and ending with the first quarter of 1994 (i.e., January, February, March).

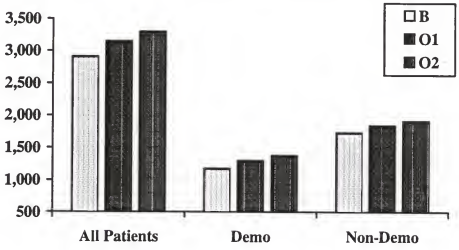
12 The analyses cover the quarters 1990:Q3 through 1992:Q4. Note that CABGs reported by the participating hospitals for the pre-demonstration months of May 1990 and June 1990 are excluded. May and June were dropped from the analysis because not all hospitals provided complete data for these months and none of the hospitals provided April 1990 data, so full quarter data could not be compiled. CABG volume varies so much from month-to-month and between hospitals, adding 2 additional but incomplete months into the following quarter would have skewed the results and made quarter-to-quarter comparisons less meaningful.

13 The analysis is based on 10 quarters of data for the original sites and 3 quarters of data for the expansion sites.

The total number of CABG surgeries performed at the original four demonstration hospitals, as a group, is up over the number of CABG surgeries performed at these institutions during the baseline period (see Figure IV-1). CABG surgery volumes increased in both the first and second years of the demonstration at these hospitals combined. Most of the increase occurred during the first year of the demonstration (see Table IV-1), however. The total number of CABG surgeries performed by the participating hospitals during Demonstration Year One was almost 9 percent higher than their surgery volume during the baseline period. The upward trend continued in the second year, but at a slower pace. The number of CABG surgeries performed by the original sites during the second year increased by only 4.8 percent over their first year volumes.

Figure IV-1

Total CABG Volume Original Hospitals



The gains in CABG surgery volume under the demonstration at the original four sites have occurred both within and outside the demonstration. First year gains were slightly higher within the demonstration population, but second year gains were almost equally divided between the two groups (i.e., the total number of patients undergoing CABG surgery within the demonstration increased by 78 while the number of patients having CABG surgery outside the demonstration at these sites increased by 72). These gains have not been equally distributed among the sites, however (see Table V-1 through Table V-3). Only three of the four original sites have realized

gains. The total number of CABG surgeries performed at the fourth was 12.5 percent lower at the end of the second year of the demonstration than during the baseline period. While the decline in CABG volume at this site occurred both within and outside the demonstration, the largest losses occurred outside the demonstration.

Table IV-1

Percent Change in Total CABG Volume at the Original Demonstration Sites

Demonstration Site	Demonstration Period					
	Baseline	Year 1		Year 2		
		Number	% Change	Number	% Change Year 1	% Change Baseline
SJMH	677	697	2.9	827	18.7	22.2
OSU	255	281	10.2	303	7.8	18.8
BUMCH	512	511	(-0.2)	448	(-12.3)	(-12.5)
SJHA	1,462	1,655	13.2	1,716	3.7	17.4
All Sites	***2,906***	***3,144***	***8.9***	***3,294***	***4.8***	***13.4***

Table IV-2

Percent Change in Demonstration CABG Volume at the Original Demonstration Sites

Demonstration Site	Demonstration Period					
	Baseline	Year 1		Year 2		
		Number	% Change	Number	% Change Year 1	% Change Baseline
SJMH	277	314	13.4	389	23.9	40.4
OSU	110	120	9.1	140	16.7	27.3
BUMCH	218	224	2.8	198	(-11.6)	(-9.2)
SJHA	566	641	13.3	650	1.4	14.8
All Sites	***1,171***	***1,299***	***19.5***	***1,377***	***6.0***	***17.6***

Table IV-3

Percent Change in Non-Demonstration CABG Volume at the Original Demonstration Sites

Demonstration Site	Baseline	Demonstration Period				
		Year 1		Year 2		
		Number	% Change	Number	% Change Year 1	% Change Baseline
SJMH	400	383	(-4.3)	438	14.4	9.5
OSU	145	161	11.0	163	1.2	12.4
BUMCH	294	287	(-2.4)	250	(-12.9)	(-14.9)
SJHA	896	1,014	13.2	1,066	5.1	18.9
All Sites	*1,735*	*1,845*	*6.3*	*1,917*	*3.9*	*10.5*

The combined number of CABG surgeries performed at two of the expansion hospitals during the first nine months of their demonstration participation is up over the number of surgeries performed at these same two institutions during the comparable nine months of their baseline period, but only by 2.2 percent.[14] These gains occurred at only one of the two hospitals, however. The total volume of CABG surgeries at St. Vincent Hospital is up by roughly 6.8 percent over the volume performed during the comparable baseline period while total volume at St. Luke's is down by roughly 1.7 percent.

Most of the CABG surgery volume at the expansion sites falls outside the demonstration. During its first 9 months of demonstration participation, St. Vincent did almost three times as many CABG surgeries outside the demonstration as it did on patients within the demonstration; the volume of non-demonstration CABG surgeries at St. Luke's was almost 1.5 times higher than under the demonstration. The third demonstration site is also performing more CABG surgeries outside the demonstration than inside, but at this site the ratio is almost 7 to one.

[14] The third expansion site, Methodist Hospital of Indiana, did not provide the evaluation team with any information on the number of CABG surgeries performed at the hospital during the 12 month period prior to its entry into the demonstration so it is not possible to include that hospital in this analysis.

Quarterly patient volumes are generally higher at the original demonstration sites (combined) than during the baseline period, but quarterly volumes occasionally dip to levels roughly equivalent to their average quarterly volumes during the baseline period (see Figure IV-2). Only two of the sites, St. Joseph Hospital of Atlanta and St. Joseph Mercy Hospital in Ann Arbor, have experienced substantial and sustained upward trends in their quarterly CABG volumes (Figure IV-3). Quarterly volumes at most other sites are running only slightly above or are cycling around their average baseline quarterly volumes.

Figure IV-2

Total CABG Volume Original Sites (By Calendar Quarter)

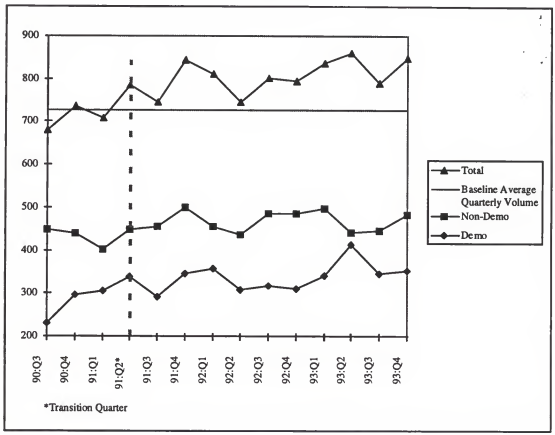
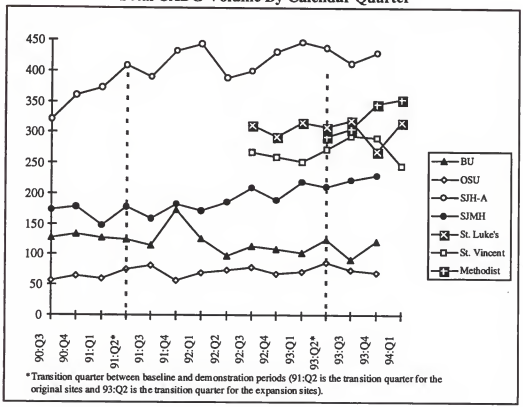


Figure IV-3
Total CABG Volume By Calendar Quarter



*Transition quarter between baseline and demonstration periods (91:Q2 is the transition quarter for the original sites and 93:Q2 is the transition quarter for the expansion sites).

Only one site, St. Joseph Mercy Hospital, has experienced a sustained upward growth in its demonstration CABG volumes (Figure IV-4). Quarterly demonstration volumes at the other sites show substantial quarter to quarter variation and are either hovering just above or cycling around their average baseline levels. Non-demonstration quarterly volumes at all sites exhibit considerable quarter to quarter variation (Figure IV-5). Quarterly non-demonstration volumes at three sites appear to be holding at a level somewhat above their respective baseline quarterly averages, while quarterly volumes at the remaining sites fluctuate around the baseline average.

It appears unlikely that any of the sites realized any immediate boost in CABG volume from their designation as a Medicare Participating Heart Bypass Center. None of the sites experienced a substantial jump in their quarterly CABG volumes in the 12 month period immediately following their entry into the demonstration (Figure IV-6). Only one site saw any real growth during this period, but that appeared to be a continuation of a pattern established during the baseline period. Tables presenting the total number of CABG surgeries performed at the participating hospitals, by quarter, can be found in Appendix A.

Figure IV-4
Demonstration CABG Volume By Calendar Quarter

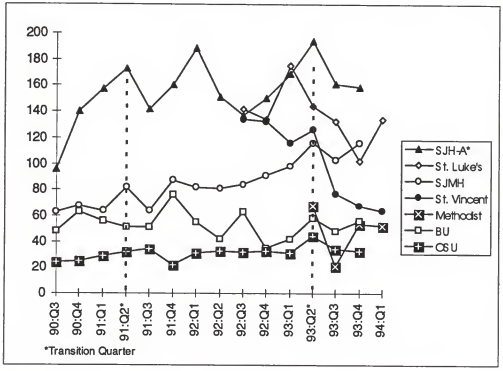


Figure IV-5
Non-Demonstration CABG Volume By Calendar Quarter

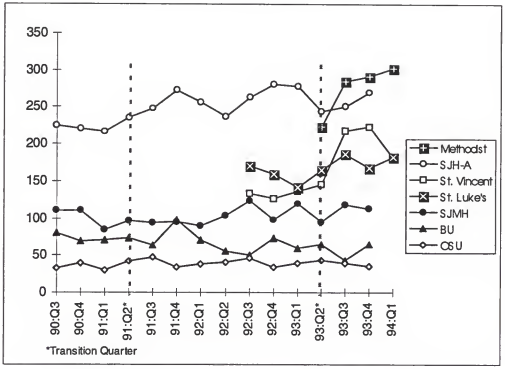
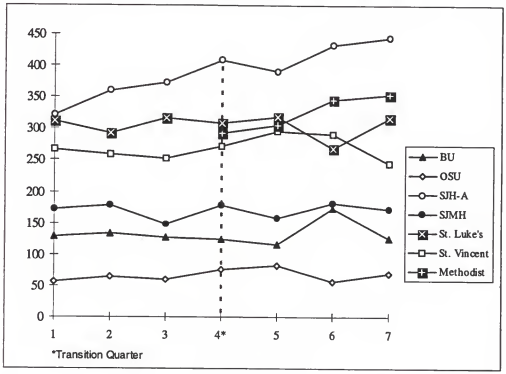


Figure IV-6
Total CABG Volume By Demonstration Quarter



B. Patient Characteristics

Lewin-VHI staff analyzed the characteristics of patients receiving CABG surgery at each hospital in order to obtain a better understanding of the types of patients who go to demonstration the sites for CABG surgery and whether the mix of types of patients changed under the demonstration. A change in patient characteristics may indicate success or failure of each hospital's marketing efforts. Markers of success include:

- ***The hospital's market area characteristics have changed.*** This would indicate the success of the hospital's efforts in using its participation in the CABG demonstration as a general marketing tool. Evidence of this could include:
  - Patients from "new" market areas (i.e., the appearance of zip codes not represented by CABG patients during the baseline period).
  - An increase in the number of patients from existing market areas.
- ***The hospital's bypass population becomes "older."*** This would indicate success of a concentrated marketing effort aimed at increasing the number of persons 65 years of age or older who seek CABG surgery at a given hospital, such as by tailoring products to the needs of this segment of the population or by tailoring communications messages to this group.

- ***Medicare is the primary payer for a greater percentage of CABG surgeries.*** This would indicate that the hospital was successful in drawing Medicare patients to the hospital for CABG surgery.

Table IV-4 summarizes the changes in patient characteristics that have occurred at each of the demonstration hospitals during the demonstration period. Generally, if the hospitals were able to expand their market, they were able to do so only slightly. St. Joseph Mercy Hospital and St. Vincent Hospital appeared to have slightly expand their geographic reach, while Ohio State University Hospital and St. Joseph's Hospital of Atlanta were able to increase the concentration of CABG patients from within their primary service areas.

Table IV-4

Changes in Patient Characteristics from Baseline to Demonstration Period

Hospital	Expansion of Market	Aging of Population	Change in Payer Mix
St. Joseph Mercy Hospital	Expansion of geographic reach.	Increase in 80+ population receiving CABG surgery.	No significant change.
Ohio State University Hospital	Increase in concentration of patients from primary market.	Increase in 75+ population receiving CABG surgery.	Decrease in percentage of CABG surgeries paid for by Medicare.
Boston University Medical Center Hospital	No significant change.	Increase in 80+ population receiving CABG surgery.	Increase in percentage of CABG surgeries paid for by Medicare.
St. Joseph's Hospital of Atlanta	Increase in concentration of patients from primary market	Increase in 80+ population receiving CABG surgery.	No significant change.
St. Vincent Hospital	Expansion of geographic reach.	Increase in 65+ population receiving CABG surgery.	Increase in percentage of CABG surgeries paid for by Medicare.
St. Luke's Hospital	Data not provided.	No significant change.	Decrease in percentage of CABG surgeries paid for by Medicare.
Methodist Hospital of Indiana	Data not provided.	Data not provided.	Data not provided.

With the exception of St. Luke's Episcopal Hospital, each hospital which provided data showed an increase in the percentage of older patients receiving CABG surgery (i.e., an increase in at least one age cohort above age 65). Whether this indicates the beginning of a trend towards older CABG patients and is the product of the hospital's marketing efforts aimed at those individuals can not be determined at this time. Detailed information on the age distribution of CABG patients at the demonstration sites can be found in Appendix B.

The payer mix data do not reflect any major changes or indicate any overall trends. Of the six hospitals which provided data, two experienced an increase in the percentage of patients for which Medicare was the primary payer, two experienced a decrease in the percentage of patients for which Medicare was the primary payer, and for two hospitals there was no significant change. In general, it appears the hospitals have not been successful in drawing substantially larger numbers of Medicare patients (relative to other patients) for CABG surgery.

V. PARTICIPANT SATISFACTION

Patient and physician satisfaction with services provided by hospitals in conjunction with an episode of illness are widely considered to be an important marker of health care quality. Patient and physician perception of hospital-based care are also important because of their potential to influence decisions involving the choice of specialty providers. The views of community-based physicians and Medicare beneficiaries regarding the services, procedures, facilities, and staff at each of the demonstration sites thus play a pivotal role in determining how successful each of the participating bypass centers will be in their marketing efforts, as measured by their ability to increase CABG volume.

The purpose of the patient and physician satisfaction component of the Medicare Heart Bypass Center Demonstration Evaluation is to provide HCFA with the information it needs to determine whether lowering the amount paid for CABG services and altering the way in which hospitals and physicians are reimbursed for these services in any way effects the care provided to Medicare beneficiaries. This analysis involves monitoring whether patient perceptions of care provided by the participating hospitals changes during the demonstration period, based on information provided by each of the sites, and the collection of data from a sample of all Medicare beneficiaries undergoing bypass surgery at a hospital in the seven demonstration markets during the last year of the demonstration period, as well as their referring physicians.

This section highlights the efforts of the participating hospitals to elicit the attitudes and opinions of patients and physicians concerning their facilities, the skills of their staff, and the quality of care they provide. The content and findings of the hospitals' patient satisfaction surveys is reviewed first, followed by a brief description of the hospital's physician surveys. The section concludes with a brief discussion of the patient and physician data collection efforts planned for the national evaluation.

A. Hospital Patient Satisfaction Surveys

All seven hospitals now participating in the Medicare Heart Bypass Center demonstration distribute consumer satisfaction surveys to their discharged patients to learn more about how they

view the adequacy of care provided to them by hospital staff during their stay. Each of the hospitals uses a different instrument to collect this information. Three of the hospitals have developed demonstration-specific survey instruments and three use the instruments developed for their general patient surveys. One of the sites, Methodist Hospital, refused to provide any information on the design and contents of their patient satisfaction survey instrument for this report, as well as any information regarding the results of their survey efforts.

The questions on the hospitals' surveys pertain to the following seven elements of hospital care:

- **Quality of Care/Overall Satisfaction.** These questions are designed to elicit the patient's impression of the hospital from a personal point of view. Included under this element are questions related to the courteousness and responsiveness of hospital staff, staff treatment of family and friends, the patient's rating of his or her overall hospital experience, and the patient's willingness to recommend the hospital to a relative or friend.
- **Staff.** Questions in this category focus specifically on the clinical and technical abilities of the hospital staff. Included in this category are issues such as continuity of care, the willingness of staff to share information with patients and the skill with which they do so, and the extent to which the actions of staff maintain the patient's dignity. The participating hospitals ask patients for their views of how well staff in the following groups perform:
  - *Medical* -- Patients are asked to rate such attributes as the technical skills of physicians, their ability to share information in a common language, their willingness to spend time with the patient, and their approachability.
  - *Nursing* -- Patients are asked to rate such attributes the as technical skills of the nursing staff, their ability to share information in a common language, their willingness to spend time with the patient, and their willingness to explain tests and procedures.
  - *Ancillary Staff* -- Patients are asked to rate the technical and interpersonal skills of ancillary and other hospital staff (i.e., billing, food service, housekeeping, etc.).
- **Facilities.** Questions in this category pertain to the patient's overall impression of the hospital's physical plant, equipment, and general maintenance. This element includes the aesthetics of the hospital surroundings, the ease of getting from place to place within the hospital, and the overall comfort of the accommodations.
- **Transitions.** These questions elicit patient reviews regarding the process for admission and discharge, transition between units (i.e., from the in-patient unit to the operating suite, from recovery to intensive care, etc.), and the transition between hospital and home.

- **Patient Education.** These questions focus on the extent to which patients believe they were given sufficient information regarding their condition and care. This element includes whether the patients feel they received adequate information concerning procedures and tests, as well as the results of those procedures and tests, and whether patients feel they received adequate instructions regarding their care requirements once home.
- **Demonstration Awareness.**[15] These questions pertain to patient knowledge of the demonstration and how they acquired that knowledge. This element includes whether patients are aware of the fact they participated in a Federal demonstration, how they found out about the demonstration, and the availability of staff members to answer their questions about specific aspects of the demonstration.
- **Billing.** Questions in this category pertain to the amount and nature of the information given to patients about how they will be billed for their care under the demonstration. This element includes patient understanding of the single bill system and whether patients felt they had received an understandable explanation of the billing from hospital staff members.

Comparison of patient satisfaction across the seven demonstration sites is not possible despite the similarity of the issues the hospitals address through their individual surveys. This lack of comparability is due to a variety of factors. First, each of the hospitals uses a different survey instrument. The instruments vary in length, in the response options offered, the issues on which the questions focus, and the manner in which the questions are asked. Second, the data submitted by the hospitals do not correspond with each other in time frame, number of patients surveyed, or definition of "demonstration group" (e.g., SVHMC's "demonstration" group is comprised of all cardiac patients, whereas BUMCH's group consists of patients receiving CABG services with DRG codes of 106 and 107). Third, not all hospitals have collected data for their non-demonstration CABG patients or for the general population of patients using the hospital. The lack of data for other patient groups in each of the hospital markets also makes it impossible to compare the satisfaction of demonstration patients to other patients across sites. The development of a standard survey instrument and methodology for the demonstration patients will facilitate cross-site comparison. The proposed application for such an instrument is currently under review at the Office of Management and Budget (OMB).

[15] re # sites that ask this

Although the data are not comparable, they suggest that patients are generally satisfied with the overall quality of care provided at the sites. When asked, patients generally express satisfaction with the medical, nursing, and ancillary hospital staff as well as their experience moving between units at the hospital and between the hospital and home, and feel that they have received adequate patient education.

B. Hospital Physician Satisfaction Surveys

Two of the participating hospitals, SJMH and BUMCH, have developed surveys to elicit information from community physicians regarding:

- Factors that influence their selection of physicians and hospitals when referring patients for specialty services,
- Their perception of the hospital and its services, the skills and practice patterns of the cardiologists, and the skills and practice patterns of the cardiovascular surgeons;
- The amount and nature of communication they would like to have with specialty providers caring for their patients;
- Their referral patterns;
- Their perceptions of how responsive hospital staff are to the care needs of their patients, and
- Their satisfaction with the services the hospital, the cardiologists, and the cardiovascular surgeons provide to referring physicians and their patients.

One of the hospitals, SVHMC, periodically elicits information regarding the adequacy of the hospital's facilities and equipment, staff, and services from physicians who have admitting privileges.

Due to limited response, SJMH and its affiliated Cardiovascular and Thoracic Surgery Office chose not to analyze the results of their survey. Some of the anecdotal comments offered by responding physicians suggest that while physicians are generally satisfied with the care provided by the surgeons and hospital staff, improvements could be made by providing:

- Patients and their families with more postoperative teaching and discharge directions, and
- Referring physicians with information regarding their patients more quickly following discharge, particularly information pertaining to patient status and post-discharge care needs.

Most respondents to the BUMCH survey indicated they were satisfied with the promptness with which the hospital schedules patient procedures following referral. Respondents were less satisfied with the timeliness and completeness of the communications they received from cardiologists and cardiothoracic surgeons regarding their patients[16] and with the efforts of cardiologists and surgeons to educate their patients about procedures and continuing care needs following discharge.[17]

St. Vincent does not routinely solicit information from referring physicians regarding the adequacy of the hospital's facilities and the services provided by staff. The hospital does, however, elicit feedback on the quality of its services from the hospital's medical staff. The SVHMC medical staff rate the overall quality of the care provided at the hospital as very good to excellent. In addition, nearly two-thirds of respondents indicated they would definitely use St. Vincent's themselves if they needed care.

C. National Evaluation of Participant Satisfaction

The purpose of the participant satisfaction component of the Medicare Heart Bypass Center Demonstration is to provide HCFA with the information it needs to determine whether lowering the amount paid for CABG services and altering the way in which hospitals and physicians are reimbursed for these services in any way compromises the care provided to Medicare beneficiaries. The information reviewed above provides HCFA with only a limited view of patient perceptions and reactions to the care provided by the demonstration hospitals. The satisfaction data the hospitals are collecting from patients are useful for monitoring whether patients opinions of the individual sites change over time. This knowledge, when combined with qualitative information supplied by the sites, can also provide some useful insights as to institution specific factors that may influence patient opinion.

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[16] Fifteen percent of respondents in 1992 indicated they were dissatisfied or very dissatisfied with the timeliness and completeness of the communications they received from cardiothoracic surgeons, up from 9 percent in 1991. Ten percent of respondents indicated their dissatisfaction with cardiology communications in 1991 while 14 percent did so in 1992.

[17] Roughly 50 percent of respondents in 1992 indicated they were satisfied with the patient education provided by cardiologists and surgeons, down from 54 percent in 1991.

The site specific monitoring, while useful, does not support the development of the composite picture of beneficiary and provider response to the demonstration necessary to fully evaluate the program's impact. For example, the sites do not routinely collect information on how their facilities and services are perceived by the general public or key subgroups, such as Medicare beneficiaries. Nor do the sites collect information looking at the extent to which the experiences and opinions of persons receiving care at their facilities differ from the experiences of persons who receive care elsewhere. In addition, the sites do not collect information regarding their services from a key observer of the demonstration process -- community based physicians.

HCFA needs to hear from Medicare beneficiaries undergoing bypass surgery both at the seven demonstration sites and at competing hospitals in the demonstration markets, as well as their referring physicians, regarding the factors that led to the selection of the hospital at which the beneficiary's bypass was performed and the qualitative features of the care provided before it can fully evaluate the viability of package pricing as a method of payment for high volume, high cost services. This data must be collected using common protocols and data collection instruments so that the experiences and outcomes of the two beneficiary groups (demonstration, non-demonstration), as well as the views of the two doctor groups (demonstration site referral, non-referral) can be compared.

HCFA plans to conduct a telephone survey of Medicare beneficiaries and community physicians in the seven demonstration markets during the last year of the demonstration to determine whether there are qualitative differences, from the consumer's point of view, in the care available through the demonstration sites. HCFA also plans to gather information regarding factors that influence patient and physician choice of site. Forty patients from each of the demonstration sites, randomly selected from a list of CABG recipients, will be called by a member of the evaluation team. Interviewers will ask these patients a series of questions to elicit their views of the demonstration, the quality of the care they received while in the hospital, as well as their views of the hospital and its facilities. The evaluation team will also call an additional 40 patients identified through MedPAR files, who received CABGs at other hospitals located in the same market areas as the demonstration sites. Information from this group of patients will be

used to compare the experience of patients at the demonstration sites to the experience of patients who receive their bypass at other institutions.

The survey instruments will include questions pertaining to patient perceptions of the hospital where they received their CABG surgery and the reasons why the hospital was selected as the site where they would have their CABG surgery. Examples of areas of inquiry include:

- **Selection of Hospital.** The survey will ask beneficiaries about the factors that influenced their hospital selection. Of particular interest are the following:
  - *Physicians* -- the extent to which the respondent's physicians influenced the decision to select a specific hospital.
  - *Circumstances* -- the circumstances under which the procedure was performed (e.g., were the circumstances urgent? was the beneficiary hospitalized when the decision for surgery was made?, etc.)
  - *Hospital-related factors* -- the importance of other factors, such as the hospital's reputation, location, accessibility, availability of required services, etc. The survey will also address the impact of the hospital's marketing efforts.
  - *Financial Issues* --the importance of price in a patient's selection of a hospital. Questions will focus on components of the price (e.g., deductibles, copayments). The survey also will include questions related to income, availability of supplemental insurance, and other factors that might influence beneficiaries' price sensitivity.
- **Program Characteristics.** The survey will address specific characteristics of the demonstration. This section of the survey may need to be tailored to specific hospitals. Some of the areas to be evaluated are the following:
  - *Benefits* -- the respondent's impression of additional services offered through the demonstration. The survey will address supplemental benefits offered by the hospital for demonstration participants, for example, discounted lodging and meals for family members.
  - *Single Billing* -- the respondent's impression of the single bill system. The survey will specifically address whether a hospital staff member explained the single billing system, if the beneficiary understood the system, and whether or not the beneficiary prefers this system.
  - *Quality of care/overall satisfaction* -- the respondent's perception of the quality of care and services and overall satisfaction. Specifically this will address if the patient believes that they received a different quality of care as the result of being in a demonstration. In addition, the patient will be asked to assess the level of physical function achieved subsequent to surgery.

In addition to these specific questions, the survey will ask the beneficiary for the name of the referring physician. As a follow-up to the beneficiary survey, 40 physicians from each of the demonstration markets will be surveyed (20 who refer patients to the participating hospital and 20 who refer patients elsewhere). The point of this survey is to identify factors that influenced physician choice of hospitals, with a particular emphasis on hospital marketing efforts and price factors. With regard to quality, the survey will query the referring physicians concerning delays in hospitalization, pre-admission communication with the demonstration site, perceived quality of care delivered, post-discharge communication with the demonstration site, post-discharge gaps in care, and continuity of care after discharge.

The patient and physician satisfaction data will be used to determine whether the demonstration achieved its overall goals without compromising the quality of care provided to Medicare beneficiaries. If demonstration hospitals alter the content of their care in ways that compromise the perceived quality of their services, beneficiaries may become less willing, over time, to receive care a the designated Medicare Bypass Centers. Information on patient and physician views of and satisfaction with the demonstration will be combined with information on patient outcomes, bypass center costs, the marketing activities of each of the demonstration sites, physician referral patterns, and CABG volume growth to make this determination.

VI. CONCLUSION

The seven hospitals participating in the Medicare Heart Bypass Center Demonstration Project have all developed and are in the process of implementing marketing plans for their CABG surgery programs. These plans, along with the implementation efforts that have been undertaken thus far, are primarily focused on promotional strategies designed to increase community awareness of their institutions and the benefits associated with use of their facilities for CABG surgery. The hospitals are using personal sales, promotional activities, and various media (e.g., brochures, direct mail, newspaper articles) to reach specific segments of the population with information about the hospitals, their heart programs, and the demonstration. In addition, the participating hospitals have developed and implemented a joint public relations program designed to build awareness of the demonstration among national business and opinion leaders as well as to inform the general public about the demonstration and its contribution to cost containment efforts.

The hospitals have focused much less attention on other aspects of an integrated, comprehensive marketing program (e.g., consumer needs and wants, product attributes, price, etc.). A clear exception is the effort the hospitals have put into changing the way in which they produce their products. Each of the demonstration hospitals has spent a considerable about of time and resources redefining the content and duration of services provided in conjunction with CABG surgery (i.e., procedures that fall within DRG 106 and DRG 107) at their institution. The hospitals instituted these changes in an effort to increase the efficiency with which they produced their services and lower their production costs. The stimulus for these changes are as likely due to market forces as to the demonstration, however, as three of the seven hospitals initiated efforts to redesign the processes through which they produce a unit of service before they entered the demonstration (although they -- as do all the demonstration sites -- continue to look for additional opportunities to shorten length of stay, reduce costs, and increase efficiency with regard to their CABG surgery services).

The full impact of the hospitals' efforts to stimulate interest in their institutions and the products and services available to Medicare beneficiaries under the demonstration may not be known for some time. The reasons for this situation are twofold. First, there may be a

considerable lag between the initiation of the hospitals' marketing communication programs and any resulting change in the care seeking behaviors of individuals requiring CABG surgery within the target markets. In order to increase the number of individuals electing to receive CABG surgery at their facilities, each of the demonstration hospitals must:

- Increase the hospital's name recognition within key segments of their target market, as well as public awareness of their designation as a Medicare Heart Bypass Center (i.e., **build awareness**);
- **Increase knowledge** of the hospital, the quality of the care it provides (especially through its cardiology and cardiac surgery services), and key attributes of the packages of services available under the Medicare Heart Bypass Demonstration among the general population, potential patients, and referring physicians;
- Alter the ways in which some portion of the general public, potential patients, and referring physicians perceive the hospital (i.e., **change** prevailing **attitudes, and preferences**); and
- **Alter established behavior patterns** such that when confronted with a situation in which hospital services are required (such as diagnostic cardiac services and CABG surgery) the referring physician and the potential patient select the demonstration hospital.

Hospital promotional activities undertaken during the early months of the demonstration may not produce any demonstrable results until the third year of the demonstration or beyond. The marketing communication and promotional activities associated with moving a person through the complex cognitive, attitudinal, and behavioral stages described above take time to plan and execute. Moving a member of the target audience who is at the first stage of the framework to the last stage involves exposure to multiple messages over an extended period of time once the communications program is fully implemented. There is often a substantial lag between exposure to key messages and any resulting change in knowledge, attitudes, beliefs, and behaviors. The hospitals' communications campaigns will have to be in place for a sufficiently long period of time and reach a substantial portion of the population before the hospitals are likely to see their CABG volumes increase beyond the level produced by secular changes in the composition and size of their respective markets.

The lack of a specific, identifiable, comprehensive marketing communications strategy focused exclusively on the demonstration is the second reason why it may be difficult, if not impossible, to determine the extent to which the participating hospitals are able to use their

designation as a Medicare Heart Bypass Center to increase patient volumes. While each of the demonstration sites has developed a marketing communications plan for the demonstration, none of the hospitals are promoting the demonstration as a stand-alone product. With few exceptions, the hospitals incorporate messages concerning the demonstration into marketing communications programs focusing either on the entire hospital or a particular line of business, such as a Heart Institute.

What is also clear is that the hospitals are as interested in using the demonstration to improve their general standing within their respective communities as they are in using it to increase the number of CABG surgeries performed at their facilities each year. The hospitals interest in using the demonstration to increase patient volumes across all patient groups (Medicare and non-Medicare) and all services contrasts sharply with HCFA's interest in the hospitals' ability to pull business from their competitors, particularly higher priced competitors, and to increase the number of Medicare beneficiaries who elect to receive their CABGs under the demonstration. The hospitals may achieve their strategic objective (i.e., increasing patients volumes overall) with only modest, or no, change in the number of Medicare CABG procedures performed at their institutions each year. The hospital's attainment of their strategic objectives may go unnoticed if there is no corresponding increase in CABG volume since the evaluation is designed only to capture changes in CABG volumes (both within and outside the demonstration) at each of the participating hospitals, not broader shifts in patient volumes.

While the full impact of the hospitals' market communications efforts will not be known for some time, data supplied by the hospitals indicate that the total number of CABG procedures performed at their facilities is higher than the number performed at the sites prior to their entry into the demonstration. Most of the increase at the original sites (when taken together as a group) occurred during the first year of the demonstration -- far too early for the increases to be attributable, in any major way, to their designation as a Medicare Heart Bypass Center or to their efforts to promote their programs and services under the demonstration. The number of CABG surgeries performed at the original sites also increased during the second year of the demonstration, but at a slower pace.

Even though CABG volumes are up overall, the sites have not contributed equally to these gains. The rate of growth varies by site, and some have lost volume. Only three of the four original sites have experienced gains in CABG volumes, despite the fact each is located in an expanding market, at least within the Medicare population.[18] The number of CABG surgeries performed at the fourth site declined sharply during the second demonstration year, after holding nearly constant in the first. Two of the original sites experienced strong growth in the first year, but realized more modest gains in the second. Volumes at the fourth site increased by only a slight margin during the first year, but rose by a substantial margin in the second.

Gains in CABG surgery volume at the original sites have occurred both within and outside the demonstration. First year growth was stronger under the demonstration than outside the demonstration, but this was due largely to the fact two of the four hospitals saw their non-demonstration volumes drop during this period. Non-demonstration volumes rose at the other two sites by a wider margin than did volumes under the demonstration. Second year gains at the hospitals as a group were almost equally divided between demonstration and non-demonstration patients. One of the hospitals experienced declines in both groups, two had larger gains under the demonstration, and the fourth experienced larger gains outside the demonstration.

Volume changes at the expansion sites are harder to characterize because only two of the three hospitals have provided baseline data and because of the short amount of time the demonstration has been in operation at these sites. CABG surgery volumes during the first nine months of demonstration participation at one of the two expansion sites are up over the comparable baseline period. CABG volumes during the first nine months of demonstration participation at the other site are slightly lower (roughly two percent) than during the comparable baseline period. Both hospitals performed fewer bypass surgeries under the demonstration during

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[18] The total number of CABG surgeries (i.e., DRG 106, DRG 107, and some cases in DRG 108) performed in these markets increased by roughly 6 to 13 percent, depending on the market. Only one of the sites captured a significant portion of the increase within the market, however. Two of the sites picked up some of the gains within their markets, but much of the increase went to other institutions. Data also suggest there has been some redistribution of CABG surgery volume within the markets since the start of the demonstration. Some hospitals in the demonstration markets have experienced substantial declines in Medicare CABG surgeries. What is unclear is whether the demonstration sites have benefited in any major way from these shifts. (See "Comparative Analysis of Demonstration Versus Competitor Hospital Volumes" in Health Economics Research, Medicare Heart Bypass Center Demonstration Final Report, December 1994.)

their first nine months of demonstration participation than they performed on a comparable population of Medicare beneficiaries (i.e., bypass surgeries coded as DRG 106 or 107) during the baseline period. Most of the CABG surgeries performed at the three expansion sites fall outside the demonstration, although the age distribution of the CABG patient population at these sites is roughly equivalent to the baseline period. This suggests that many of the CABG procedures performed on Medicare beneficiaries during the early months of the demonstration fall under DRGs not included in the demonstration.

APPENDIX A

Table A-1

Total CABG Volume by Hospital by Calendar Quarter[a]

Demonstration Sites	90:Q3	90:Q4	91:Q1	91:Q2*	91:Q3	91:Q4	92:Q1	92:Q2	92:Q3	92:Q4	93:Q1	93:Q2 *	93:Q3	93:Q4	94:Q1	*Total*
SJMH	173	178	148	178	158	182	172	185	209	189	218	211	222	229		*2652*
OSU	57	64	59	75	82	56	69	74	78	67	71	87	74	69		*982*
BUMCH	128	133	127	124	115	173	125	98	114	108	102	124	92	121		*1684*
SJHA	321	360	373	408	390	433	444	388	400	431	447	438	412	429		*5674*
SVMH									267	259	252	272	295	291	245	*1881*
SLEH									312	293	316	309	319	269	317	*2135*
MHI												292	306	346	354	*1298*
TOTAL	*679*	*735*	*707*	*785*	*745*	*844*	*810*	*745*	*1380*	*1347*	*1406*	*1733*	*1720*	*1754*	*916*	*16306*

[a] The number of CABG surgeries presented in this table, by calendar quarter, for each of the participating hospitals, differ slightly from the numbers presented in similar tables contained in a second final report prepared by Health Economics Research for HCFA as part of this evaluation. The differences in quarter-to-quarter volume reflected in the various tables contained in these reports are primarily due to differences in the decision rules used to assign cases to calendar quarters (i.e., date of surgery vs. date of admission, etc.) and to differences in the universe of patients on which the analyses are based (e.g., the information presented in Table A-2 of this report is based on data provided by the participating hospitals and is limited to DRGs 106 and 107 while the information presented in the Heart Bypass Surgery Trends report is based on MedPAR data and includes DRGs 106, 107, and 108). Despite the discrepancies in the numbers themselves, the reports are consistent in their characterization of the relative size of the CABG demonstration programs at the participating hospitals and the extent to which the number of CABGs performed under the demonstration has changed since the project began.

Table A-2

Demonstration CABG Volume by Hospital by Calendar Quarter

Demonstration Sites	90:Q3	90:Q4	91:Q1	91:Q2 *	91:Q3	91:Q4	92:Q1	92:Q2	92:Q3	92:Q4	93:Q1	93:Q2 *	93:Q3	93:Q4	94:Q1	*Total*
SJMH	63	68	64	82	64	87	82	81	84	91	98	116	103	116		*1199*
OSU	24	25	29	32	34	22	31	33	32	33	31	44	34	33		*437*
BUMCH	48	63	56	51	51	76	55	42	63	35	42	58	48	56		*744*
SJHA	96	140	157	173	142	160	188	151	137	150	169	194	161	159		*2177*
SVMH									134	132	116	126	77	68	64	*717*
SLEH									142	134	175	144	132	102	134	*963*
MHI												68	21	54	52	*195*
TOTAL	*231*	*296*	*306*	*338*	*291*	*345*	*356*	*307*	*592*	*575*	*631*	*750*	*576*	*588*	*250*	*6432*

Table A-3

Non-Demonstration Patient CABG Volume by Hospital by Demonstration Quarter

Demonstration Sites	90:Q3	90:Q4	91:Q1	91:Q2*	91:Q3	91:Q4	92:Q1	92:Q2	92:Q3	92:Q4	93:Q1	93:Q2*	93:Q3	93:Q4	94:Q1	*Total*
SJMH	110	110	84	96	94	95	90	104	125	98	120	95	119	113		*1453*
OSU	33	39	30	43	48	34	38	41	46	34	40	43	40	36		*545*
BUMCH	80	70	71	73	64	97	70	56	51	73	60	66	44	65		*940*
SJHA	225	220	216	235	248	273	256	237	263	281	278	244	251	270		*3497*
SVMH									133	127	136	146	218	223	181	*1164*
SLEH									170	159	141	165	187	167	183	*1172*
MHI												224	285	292	302	*1103*
TOTAL	***448***	***439***	***401***	***447***	***454***	***499***	***454***	***438***	***788***	***773***	***774***	***983***	***1144***	***1166***	***666***	*9874*

APPENDIX B

Percentage Distribution of All CABG Patients (Demonstration and Non-Demonstration combined) by Age, by Demonstration Year

Original Sites

	SJMH			OSUH			BUMCH			SJHA		
AGE	Baseline	Year 1	Year 2	Baseline	Year 1	Year 2	Baseline	Year 1	Year 2	Baseline	Year 1	Year 2
<65	48.7	44.9	45.4	50.2	55.5	51.8	46.1	43.4	45.7	49.4	50.5	50.8
65-69	21.9	22.6	22.3	20.5	17.6	17.6	16.3	17.3	16.4	18.5	16.0	17.2
70-74	15.9	19.0	15.8	18.6	15.1	15.8	21.1	19.8	18.1	17.0	15.3	17.6
75-79	10.7	9.6	11.4	8.8	9.6	10.2	12.1	14.9	13.6	11.7	10.5	9.9
80+	2.7	3.9	5.1	1.9	2.2	4.6	4.4	4.6	6.1	3.4	7.8	4.5
Total	100	100	100	100	100	100	100	100	100	100	100	100
Number[a]	n=515	n=584	n=721	n=215	n=272	n=284	n=412	n=410	n=359	n=1459	n=1659	n=1724

Expansion Sites

	SVMH			SLEH			MHI		
AGE	Baseline	Year 1[a]	Year 2	Baseline	Year 1[a]	Year 2	Baseline[b]	Year 1[a]	Year 2
<65	43.4	40.4	--	47.4	47.5	--	N/A	50.5	--
65-69	17.1	18.4	--	20.7	21.3	--	N/A	17.0	--
70-74	21.8	20.6	--	16.4	16.1	--	N/A	14.4	--
75-79	11.0	15.8	--	10.9	10.1	--	N/A	12.9	--
80+	6.6	4.8	--	4.6	5.0	--	N/A	5.2	--
Total	100	100	--	100	100	--	N/A	100	--
Number[c]	n=1050	n=827	--	n=1230	n=905	--	N/A	n=1006	--

a Based on three quarters of data for demonstration year 1.

b Baseline data are not included for Methodist Hospital of Indiana because the hospital was only able to provide one quarter of baseline data.

c Totals do not equal CABG volume presented in Table V-4 in all instances. This is due to the fact that age data were not available for all patients at some hospitals

Percentage Distribution of Demonstration CABG Patients by Age

	Original Sites								Expansion Sites		
	SJMH		OSUH		BUMCH		SJHA		SVMH	SLEH	MHI
AGE	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2	Year 1[a]	Year 1[a]	Year 1[a]
<65	4.5	6.4	14.2	13.6	3.6	9.6	9.1	8.6	3.4	7.3	17.3
65-69	36.6	37.4	30.8	31.4	28.1	23.7	25.1	29.7	31.4	31.8	30.7
70-74	33.8	26.5	31.7	28.6	33.5	31.8	29.6	33.8	36.2	31.0	23.6
75-79	17.8	20.4	18.3	17.9	26.3	24.2	20.0	19.3	22.7	20.4	21.3
80+	7.3	9.4	5.0	8.6	8.5	10.6	16.2	8.6	6.3	9.5	7.1
Total	100	100	100	100	100	100	100	100	100	100	100
Number[b]	n=314	n=393	n=120	n=140	n=224	n=198	n=649	n=663	n=207	n=368	n=127

a Based on three quarters of data for demonstration year 1.
b Totals do not equal CABG volume presented in Table V-4 in all instances. This is due to the fact that age data were not available for all patients at some hospitals

Percentage Distribution of Non-Demonstration CABG Patients

	Original Sites								Expansion Sites		
	SJMH		OSUH		BUMCH		SJHA		SVMH	SLEH	MHI
AGE	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2	Year 1[a]	Year 1[a]	Year 1[a]
<65	91.9	92.1	88.2	88.9	91.4	90.1	77.0	77.1	75.0	52.7	55.3
65-69	6.3	4.3	7.2	4.2	4.3	7.5	10.1	9.4	14.2	14.0	15.0
70-74	1.9	3.0	2.0	3.5	3.2	1.2	6.0	7.4	6.0	15.3	13.1
75-79	0.0	0.6	2.6	2.8	1.1	0.6	4.4	4.1	3.0	13.5	11.7
80+	0.0	0.0	0.0	0.7	0.0	0.6	2.5	2.0	1.9	4.4	4.9
Total	100	100	100	100	100	100	100	100	100	100	100
Number[b]	n=270	n=328	n=152	n=144	n=186	n=161	n=1010	n=1061	n=620	n=537	n=879

a Based on three quarters of data for demonstration year 1.
b Totals do not equal CABG volume presented in Table V-4 in all instances. This is due to the fact that age data were not available for all patients at some hospitals

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